

Gateway Graphical User Interface Test Applications

User Guide

Checkout and Launch Control Systems (CLCS)

84K07516

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GATEWAY GRAPHICAL USER INTERFACE TEST APPLICATIONS

CHECKOUT AND LAUNCH CONTROL SYSTEMS (CLCS)

1. INTRODUCTION

1.1 SCOPE

This Gateway GUI Test Applications document explains the operation of two test user interfaces for the CLCS Gateways. These interfaces are the Gateway Command Processor and DDP Change Data Packet Analyzer. This document is for the Redstone release based on the 1.6 Razor version of cgs.test.hci.o2.redstone in Common_GW_Services.

1.2 PURPOSE

This user guide is intended to assist software developers in the use of the Gateway test interfaces. It provides a quick start guide to run the applications as well as more detailed sections to fully understand the application. The purpose of these applications is to allow gateway developers to test their gateway by simulating an OpsCM, CCP, and DDP.

1.3 RELATED DOCUMENTS

XXXXXXXXXX	GSE Gateway Services Requirements and Design	June 24, 1997
XXXXXXXXXX	Common Gateway Services CSCI Requirements and Design	June 20, 1997
84K00353	Command Management to GSE Gateway Interface Description Document (IDD)	June 12, 1997
84K00351-000	Real Time Processing System Packet Payload ICD	June 2, 1997
84K00360-001	Common G/W Services CSCI to System Control CSCI OpsCM CSC IDD	May 1997

1.4 DOCUMENT OVERVIEW

This document is organized into 5 main sections.

Section 1 is the introduction to the document, providing the scope and other general information.

Section 2 describes the functionality of the Command Gateway Processor. This includes both a quick setup to execute the software and detailed instructions with figures to understand all features.

Section 3 describes the functionality of the DDP Change Data Packet Analyzer. This includes both a quick setup to execute the software and detailed instructions with figures to understand all features.

Section 4 describes how to install the application and how to install the TCL components necessary for execution.

Section 5 is for miscellaneous information including specific file structure for the software package, source code information, and sending bug reports.

1.5 DOCUMENT CONVENTIONS

The reference to <installDir> refers to the base directory of the application package. The base directory houses all the individual base directories of the application (i.e. rtcn, command, amclm, etc.) These are located in the test directory of the Razor 1.5 release of cgs.test.hci.o2.redstone in Common_GW_Services.

2. GATEWAY COMMAND PROCESSER USER INTERFACE

2.1 INTRODUCTION

This interface package acts as a CCP/OpsCM simulator in order to test gateways while still in development. The user interface is able to send commands on an OpsCM stream and a CCP stream. The contents of the packet sent and the response received can be analyzed by the main display window. This information will allow verification that the gateway is working correctly.

2.2 QUICK START-UP

2.2.1 Introduction

This quick start up is assuming that you have the correct installation on your machine and that the correct environment variables have been set. It also assumes that the `IDD_rel_mc_addrs.txt` file has been configured properly for the streams that the interface will be accessing. If you are unsure about these setups, please see Section 4 on Installation and Configuration.

2.2.2 Startup

The application is started via a TCL script that is located in `<installDir>/command/ui` in the installation package. Typing `'cmd_TCL'` will execute the script to launch the application. There is one command line argument that can be passed. The interface has three font sets in the program, because different systems display the fonts differently. Therefore if you are Xhosting from an SGI to a Sun or Windows machine, adding the argument can set the fonts.

Windows: `cmd_TCL win`
SUN: `cmd_TCL sun`

A dialog box will appear asking for the host name. This information will be used to connect to an OpsCM stream. Enter a host name if you wish the application to connect to this stream and press OK. Press NO OPSCM to not connect to a OpsCM stream and bring up the main window for CCP commands only.

2.2.3 Main GUI Interface

Once connection to an OpsCM stream was successful the main window is displayed. The default setup brings the command to the OCM window and the INIT/LOAD command. The window has three main windows as shown in Figure 2-1. The Command Control window, the Status window, and the Command/Response window. You can now select what command you want to send by selecting the Command group (first drop-down menu) and the command (second drop-down menu) Then input the requested attributes and press the send button to send the command. Results will be displayed in the text display.

2.2.4 Exiting the Application

It is important to exit the application by using the exit button on the window. Do not Control-C from the executing shell. This process allows for the removal of shared memory.

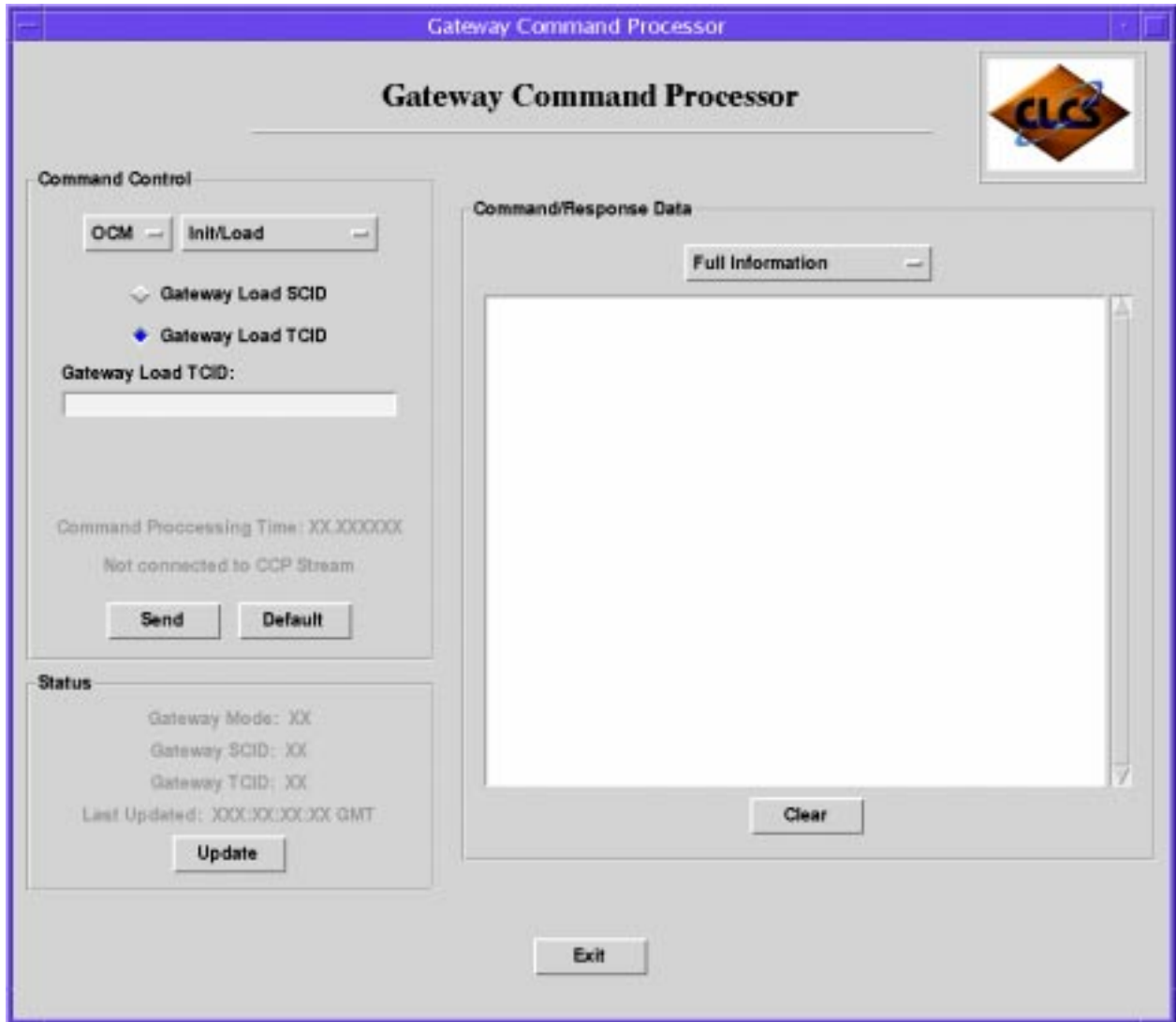


Figure 2-1: Gateway Command Processor(GCP) Main Command Window

2.3 DETAILED FEATURES

2.3.1 OpsCM host name

On startup of the application, a dialog box will request the host name to be entered. If the user does not want to connect to an OpsCM stream, the NO OpsCM button can be pressed. This will prevent the application from connecting to an OpsCM stream and still open the main window. However, only CCP and MAN commands groups are available with No OpsCM. After pressing OK, the program will attempt to connect to the stream. If an error occurs, a dialog box will appear and it will allow the name of the stream to be reentered.

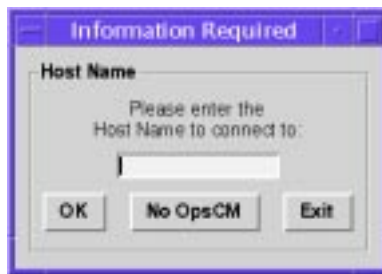


Figure 2-2: GCP OpsCM Dialog Box

2.3.2 Command Control

The command control window is the main control of this application. This is where the commands are setup up and sent. The window is divided into four parts: Command Selection - Attributes - Display - Command Buttons. Command Selection deals with all the other three sections, therefore the other three will be explained first.

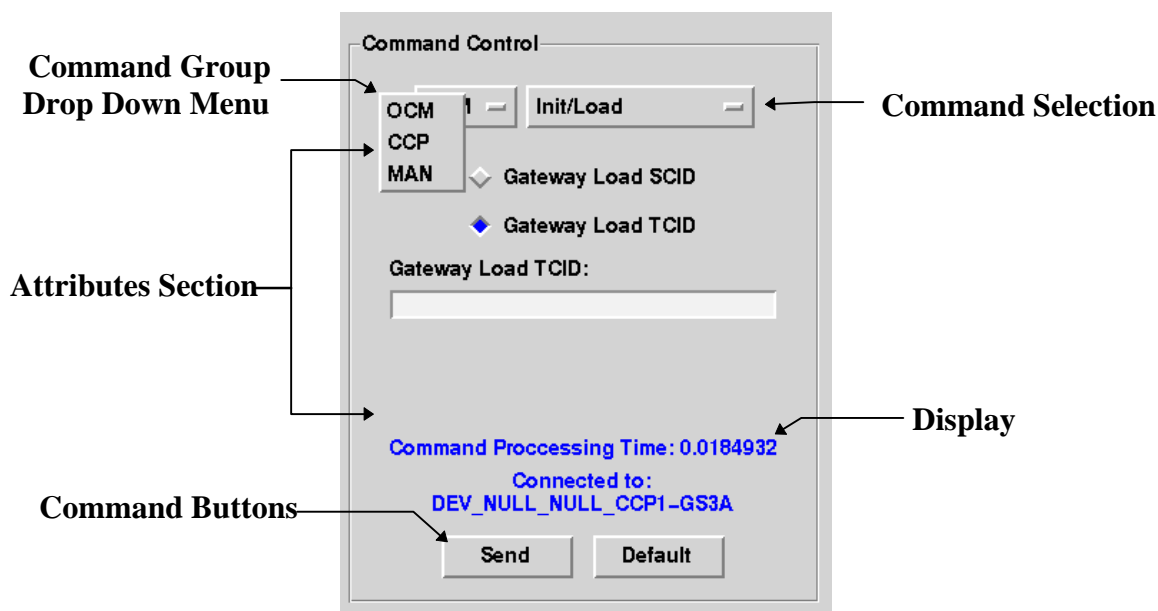


Figure 2-3: GCP Command Control Screen

2.3.2.1 Attributes Section

The Attributes section is located between the Command Selection and the Display area of the Command Control window. (see Figure 2.3) This section will hold the attributes that will be passed for each command. If commands do not require any inputs, the attributes section will simply state “No Inputs Required.” Whenever there is a change from command to command the attributes section will change to the current command attributes.

2.3.2.2 Display Line

The display line shows two pieces to the user at all times. The first is the Command Processing time. Whenever a command is sent the application will time how long it took from execution to response and display that in the Display area. The time will not be calculated for connections and disconnections to stream. The other is a CCP connection status. When not connected to a CCP stream the status is grayed out and say “Not connected to Stream” If the stream is connected, the message is in blue and states the name of the connected stream.

2.3.2.3 Command Buttons

The two command buttons on the bottom on the Command control are for sending the command and clearing out the attributes section. Pressing send will send the command with the current inputted attributes. Pressing default will clear the current command attributes to the default setting.

For certain commands these buttons may change. The send button will become ‘Connect’ or ‘Disconnect’ for CCP stream connections. The default button will be disabled for commands that have no attributes.

2.3.2.4 Command Selection

The top part of the Command Control window holds two drop-down menus to select the command group and the command that is requested. The grouping of the commands is as follows.

OCM:	Init/Load Activate Terminate Inhibit < <i>Not Supported in Redstone</i> >
CCP-Disconnected:	Connect CCP
CCP-Connected:	Apply Analog Set Discrete Disconnect CCP
MAN:	Manual Command.

2.3.2.4.1 OCM

Init/Load: The Init/Load command will send an Init TCID or SCID command to the gateway. There are two inputs. The first input is a choice between Init TCID and Init SCID. The second input is a TCID name and only required for a TCID load.

Activate: The activate command has a choice for inputs, however the Redstone drop only requires the use of Activate and Disable Long Bus Polling. The other options are there but disabled. They will be in future releases.

Terminate: The terminate command is sent with this selection. No inputs are required.

2.3.2.4.2 CCP

The CCP has two different command menus depending if the interface is connected to CCP stream.

CCP: (*Disconnected*)

CCP Connect: This is the only command choice available when not connected to a CCP stream. When this command is selected, a dialog box appears to connect to the CCP stream (see Section 2.3.5).

CCP: (*Connected*)

When the user interface is connected to the CCP stream, there are three different commands available. They are described as follows:

Apply Analog: The Apply Analog command allows the user to set an FDID to the

inputted analog value. The attributes are the FDID and a decimal value.

Set Discrete: The Set Discrete command allows for discretes to be set to off (all zeroes) or on (all ones.) The attributes are the FDID and a selection between one and zero.

CCP Disconnect: The CCP Disconnect will disconnect the user from the CCP stream.

Note: The program will not be able to exit unless the stream has been disconnected.

2.3.3 Status Window

The status window displays the status of the gateways. By pressing the update button a command is issued over the gateway to retrieve the gateway state and TCID/SCID information. The current values of the TCID and SCID are retrieved from a test file. The future plans are to put the version numbers in those fields, however for Redstone, the return values are “testTCID” and “testSCID”. The time that is shown is captured from local machine’s system clock and not the gateway.



Figure 2-4: GCP Status Box

2.3.4 Command/Response Window

The Command/Response window displays the information from all commands received and all responses sent. This information is displayed in a raw dump and decoded form as the default. However the user can change what type of information is to be displayed by selecting a new format specifier in the option drop-down menu. The output highlights will switch between red and blue to distinguish between the previous packet. The clear button on the bottom of the screen will clear all the contents of the display buffer. There is no undo for this command.

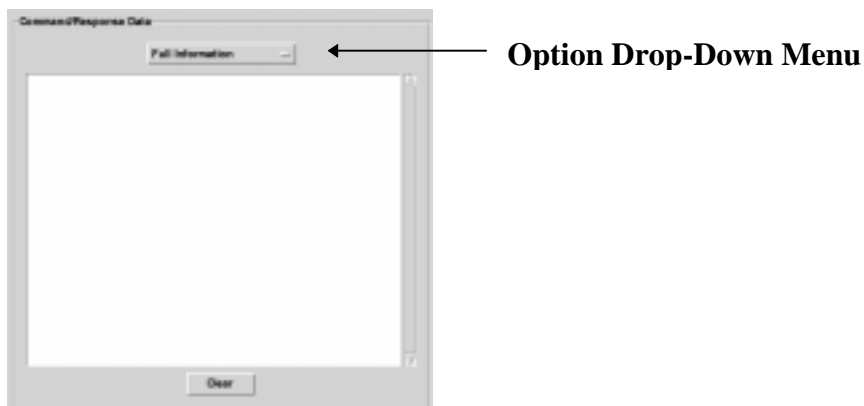


Figure 2-5: GCP Command/Response Window

2.3.5 CCP Stream Input dialog

When attempting to connect to a CCP stream, a dialog box will appear requesting the stream name be entered. The user is forced to follow the Common Gateway Service Stream Names formats, by selecting the drop-down menus. If STS is selected in the third option box, the first entry box becomes active to allow for entry of an STS number. If it is required to have manual entry control after the NULL/STS option box, press the manual control button to activate that entry field and enter in the required string. The full stream name will be displayed in the Command Control box on the main window after the dialog box exits. Therefore, the stream name can be verified before an attempt to connect. If the stream name needs to be changed, press Connect CCP in the Command Control Command Selection menus, and the dialog box will reappear.

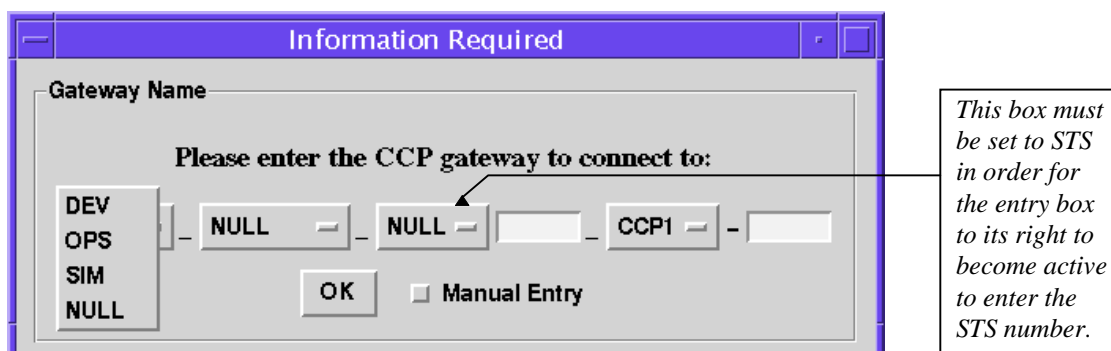


Figure 2-6: CCP Stream Dialog Box

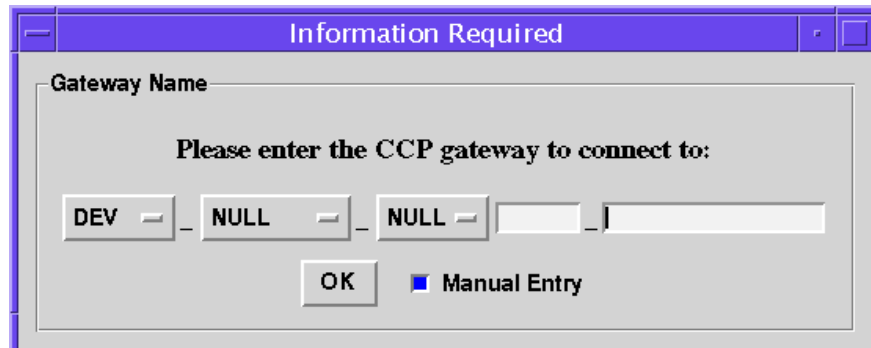


Figure 2-7: CCP Stream Dialog Box with Manual button down

2.3.6 Logical Source Datafile

There is a datafile that holds the ID numbers and location names for the Logical Source field. This ID information is found in the header of the DDP Change Data Packet. This file can be edited to include whatever numerical code is necessary. The file has the specific formatting instructions and is located at <installDir>/rtcn/dat.

2.3.7 Exit Button

The exit button will terminate the entire Gateway Command Processor GUI and clear up any shared memory that was used. The program will not terminate if a CCP stream is still connected, be sure to disconnect prior to program exit. The application should only be exited with this exit button and not by Control-C in the executing shell.

If you have to Control-C out of the application, check the shared memory by typing 'ipcs'. Remove the shared memory your userID created by typing 'ipcrm -m <SHMEM LOCATION NUMBER>'.

2.4 TEST PROCEDURES

2.4.1 Introduction

The Gateway Command Processor GUI has been successfully tested with the Redstone development GSE and SIM Gateways. The program runs off the common gateway service functions, and should work in testing all other gateway utilizing the common gateway services procedures. The following procedure outlines what was performed to verify the operation of this GUI on the GSE gateway.

2.4.2 Gateway Command Test Procedure

GSE GATEWAY

- Connected to dev01 target for the OpsCM stream
- Successfully sent the Init TCID Load, Activate and Inhibit commands over the OpsCM stream
- Successfully connected to the development CCP Stream
- Sent commands to the refrigerator/freezer and received responses.
- Tested all display options in Command/Response area with no apparent problems
- Tested all aspects of the command GUI with no apparent GUI problems
- Disconnected from CCP stream and exited the GUI with no problems

3. DDP CHANGE DATA PACKET ANALYZER

3.1 INTRODUCTION

This interface package acts as a DDP simulator to monitor the Change Data stream. It will pull 100 records into a buffer and place them into the display screen. During the read the user can stop the stream or wait for the buffer to fill up. This information is displayed in a nice decoded format allowing the end user to easily read the raw and decoded change data.

3.2 QUICK SETUP

3.2.1 Introduction

This quick start up is assuming that you have the correct installation on your machine and that the correct environment variables have been set. It also assumes that the `IDD_rel_mc_addrs.txt` file has been configured properly for the streams that the interface will be accessing. If you are unsure about these setups, please see Section 4 on Installation and Configuration.

3.2.2 Startup

The application is started via a TCL script that is located in `<installDir>/rtcn/ui` in the installation package. Typing `'rtcn_TCL'` will execute the script launching the application. There is one command line argument that can be passed. The interface has three font sets in the program, because different systems display the fonts differently. Therefore if you are Xhosting from an SGI to a Sun or Windows machine, adding the argument can set the fonts.

```
Windows: rtcn_TCL win
SUN:      rtcn_TCL sun
```

On startup a DDP Stream dialog box will appear. Enter in the stream name by selecting the correct components in drop down menus. Press OK to connect to the stream and bring up the main application window.

3.2.3 Main GUI Interface

The main window has a relatively simplistic operation in order to receive data packets from the DDP stream. Simply press the start button and data packets are read from the DDP stream and displayed to the Packet Display window. The read can be stopped by pressing the stop button or waiting until the 100 packet buffer is full. Once the buffer fills up, the start button can be pressed again to get a new 100 packets. To clear the display screen, press the clear button. To print the data buffer contents to the default printer, press the print button.

3.2.4 Exiting the Application

It is important to exit the application by using the exit button on the main window. This will allow the program to disconnect from the DDP stream and clear up any shared memory that was in use.

3.3 DETAILED FUNCTIONS

3.3.1 Introduction

There are two main interfaces for this application, the DDP Stream Dialog Box and the Change Data Packet Analyzer main window.

3.3.2 DDP Stream Dialog Box

On startup a DDP stream dialog box will appear asking for the name of the DDP data stream. This dialog box conforms to the Common Gateway Services Stream Names, and the stream can be changed by selecting the different drop-down menus. The first entry box will become active if STS is selected so the STS number can be entered. To enter in a manual entry after the STS/NULL option, press the Manual Entry button. A new entry box will replace the end of the stream allowing the user to customize the end (see Figure 3-2). Connection to the stream will be attempting upon pressing OK. If a failure occurs, a dialog box will show with the name of the stream to verify the stream was entered correctly. The stream entry dialog box will re-appear if a failure occurs. If connection is successful the main window of the DDP Packet Analyzer appears.

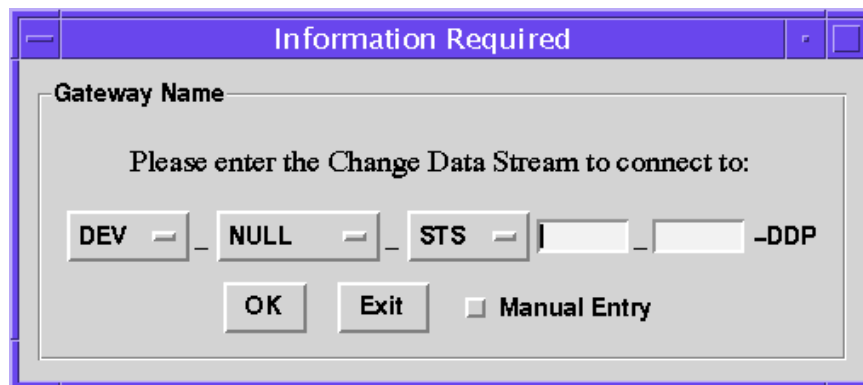


Figure 3-1: DDP Stream Dialog Box

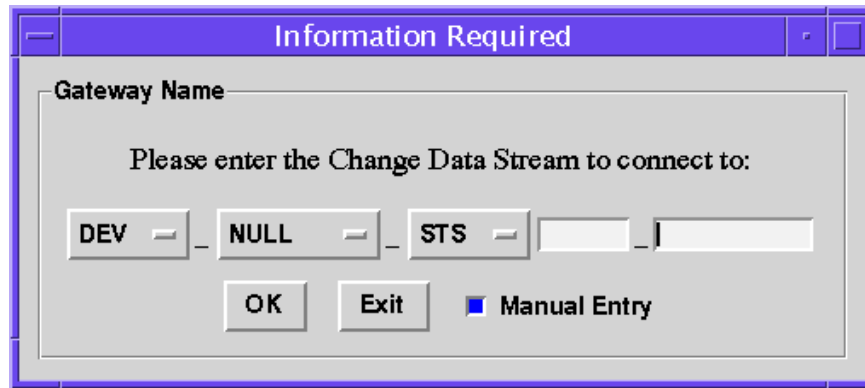


Figure 3-2: DDP Stream Dialog Box with Manual Button

3.3.3 Change Data Packet Main Window

This window is divided into two sections, the Stream Read/Control section and the Packet Display section



Figure 3-3: DDP Change Data Packet Analyzer Main Panel

3.3.3.1 Stream Read/Control

This section consists of all the different command button and the stream status line.

3.3.3.1.1 Start Button

The start button will start to read from the buffer the change data packets. It will display this information to the screen in raw dump and decoded format. Once the start button is pressed, it is disabled until the buffer fills up or the stop button is pressed.

3.3.3.1.2 Stop Button

The stop button will stop the data coming from the DDP buffer. It will not clear the buffer, so when the start button is pressed again, it will pick up where it left off skipping one packet. If the read is done all the way to the end of the buffer, the buffer is cleared. Therefore, pressing start will take another 100 packets, starting with the current time. The stop button is disabled when the start button is pressed.

3.3.3.1.3 Clear Button

The clear button will clear the display section of the main window and the data read buffer.

3.3.3.1.4 DDP Stream status

This displays what stream is connected and blinks red when reading from the stream.

3.3.3.2 Packet Display

3.3.3.2.1 Display window

The display window is where all the DDP change data information is displayed. The header highlights alternate between blue and red in order to distinguish between packets.

3.3.3.2.2 Packets per Sec Display

The packets per second display shows the amount of packets that are being transmitted over the stream by utilizing the time that is sent in the header.

3.3.3.2.3 Print Button

The print button will send the current contents of the display buffer to the default printer. It temporarily saves a file to the system. If the current user does not have write permissions, the print function will not work and an error dialog will appear. If no printer is set up for that host machine, an error will appear.

KNOWN BUG: It seems the operating system returns an error for the first time the print button is pressed. It still performs a print to the default printer. Subsequent prints will not produce errors. If you get an error, check the lpstat on the operating computer and see if it is printing. If not the printer may not be set up correctly.

3.3.3.2.4 Exit Button

This button will completely exit out of the application, closing to the DDP stream and cleaning up shared memory.

If you have to Control-C out of the application, check the shared memory and semaphores by typing 'ipcs'. Remove the shared memory your userID created by typing 'ipcrm -m <SHMEM ID NUMBER>'. Remove the semaphore your userID created by typing 'ipcrm -s <SEM ID NUMBER>'.

3.4 TEST PROCEDURES

3.4.1 Introduction

The DDP Change Data Packet Analyzer has been successfully tested with the Redstone development GSE Gateway Change Data. The following procedure outlines what was performed to verify the operation of this GUI on the GSE gateway DDP data.

3.4.2 GSE Gateway Test Procedure

GSE GATEWAY

- Change data was being sent from the GSE Gateway on a development DDP Stream
- Connected to the DDP Stream with no problem
- The GUI formatted and displayed the packets correctly.
- The print button did produce an error on the first attempt, but printed successfully (see Known Bug in 3.3.3.2.3)
- Exited with no problem

4. INSTALLATION AND CONFIGURATION

4.1 DOWNLOADING FILES

4.1.1 Overview

The Gateway Command Processor and the DDP Packet Analyzer are both created with TCL and their own executable TCL shell. It is necessary to have either TCL version 7.6, TK version 4.2, and TIX version 4.1 installed on the executing machine or follow section 4.3 to install the necessary TCL files to the end user machine. This document is for the Razor thread 1.5 of `cgi.test.hci.o2.redstone` in `Common_GW_Services`.

4.1.2 Installation of Application package

The razor 1.5 thread has all the files that are necessary in the test folder of `cgi.test.hci.o2.redstone` in `Common_GW_Services`. Create a script in Razor to download this to the destination machine. Do not change the directory structure. Once the files are download, the script can be configured to run.

4.2 CONFIGURATION OF SYSTEM

4.2.1 Stream Text File

Once downloaded, edit the `IDD_rel_mc_addrs.txt` in the `<installDir>/amclm/` directory or copy in the file that needs to be used. It is important to keep the `amclm` directory in that location. There have been problems having the `amclm` directory too many levels deep of the executable.

4.2.2 Environment Variables

Three environment variables need to be set:

```
SSV_RM          -> <installDir>/amclm
TCL_INCLUDE      -> <installDir>/tcl_include
LD_LIBRARY_PATH -> /usr/local/lib (or the location of the TCL programs' lib files)
```

4.2.3 Debugging

The applications both have built in debugging features, controlled by a call in the startup script. The debug feature is defaulted to on for this release and can be manually turned off by editing the startup script (`cmd_TCL` or `rtcn_TCL`.) Find the line `dOn` and put a pound sign (#) in front of that line to turn debugging off. This will significantly reduce the information that is printed to the executing shell.

4.3 TCL, TK AND TIX

4.3.1 Overview

It is not necessary to make a full installation of the TCL, TK and TIX binaries in order to run this software. It is only necessary to move over the scripting libraries and compiled shared libraries for that system.

4.3.2 Installation

The files that are needed for this install are located in the intstallTCL directory of the Razor download. Download these files before attempting to install. The following files need to be moved:

```
<installDir>/installTCL/lib      >>>  move to  >>>  /usr/local/lib/  
<installDir>/installTCL/include  >>>  move to  >>>  /usr/local/include/
```

Once this is complete, the executables for the test applications should run with no TCL error messages.

5. MISCELLANEOUS INFORMATION

5.1 FUTURE ENHANCEMENTS AND BUG REPORTING

The current application is currently still in development, therefore if areas of improvement or bugs are discovered, please pass on your discoveries. Future releases will incorporate the new features if possible and remove bugs. The programmer can be contacted at Grandey-1, Douglas over Microsoft Exchange or at 861-3005. If you are reporting a bug, make sure to describe what happened in extreme detail and provide any error messages that were displayed.